

ATTACHMENT TO:

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MEMORANDUM FOR: Chief, Technical Services Group, NPIC
ATTENTION : Chief, Technical Operations Staff, TSG/NPIC
SUBJECT : RED Monthly Report (February 1972)

Significant Items of Interest for February 1972:

1. Work was completed on the pilot study to evaluate what influence a recent FDA ruling on safety glass for spectacles might have on the interpretation process and on exact mensuration. The final report on this task is due in March.

2. Data collection on the Search Improvement Program started during the month. The eight PI's involved in this task will continue to fill out data forms regarding search for the remainder of the readout of the current mission.

3. During February, a new study was started to evaluate the effects contact lenses have on the Photo Interpretation Process.

4. The final report for the FY-71 Image Interpretation Research Program was received during February. Summaries of the FY-71 effort, developed by a team of Center personnel, were prepared for distribution to Center components. The technical reports are to be evaluated with replies due to C/TSG within 90 days of receipt.

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5. The IIRP Project Review Board met 9-11 February to evaluate the current NPIC [redacted] Program. In attendance were representatives from TSG/RED, IEG/OD, OMS/PSS, DDS&T/ORD [redacted] and one consultant [redacted]. A report of the meeting will soon be available.

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6. Color Vocabulary [redacted]
The Director/NPIC distributed copies of the [redacted] Color Vocabulary throughout the reconnaissance community on 3 February.

Declass Review by NIMA/DOD

NRO review(s) completed.

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7. Digital Image Manipulation

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a. Contract [] was extended to 15 March 1972 to allow for printing of the final report, due on 1 April 1972. Twenty copies of the final report will be made available to NPIC.

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b. [] 2 February to discuss the first draft of the final report and to discuss a possible future contract with RED/ATB.

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c. [] visited NPIC on 23-24 February to assist PSG/AID personnel in determining how long and how much effort must be expended to convert the [] software package to the UNIVAC 494 computer [] gave a complete breakdown of the main software program and the various options associated with it.

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8. Unconventional Film [] Evaluation Support. The final report on this contract was received. A critical examination of the experimental design and statistical analysis of the [] tests of dry silver was made. The recommendations will be applied to tests on other films []

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9. Photoscience Support [] received written authorization on 10 February to proceed with the FY-72 continuation. We have since received one proposal and two more are in preparation for quick feasibility assessments. An extended discussion was held on the R&D effort necessary to develop and demonstrate high color intensity dyes for use [] A firm proposal will be forthcoming; meanwhile [] estimates that the project will require approximately [] six months. The final inspection report and the contract completion memorandum were completed for the FY-71 part of this program.

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10. In-House Activities:

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a. On 24 February [] IEG [] discussed with C/IEG the utilization of the Army PI attitude test within IEG. Work began during the reporting period on developing the FY-73 []

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b. [] (NAVOCEANO) visited [] on 18 February to conduct oceanographic R&D experiments from [] material on the Image Translator and Display. Previous experiments on the IT have allowed NAVOCEANO to determine high frequency ocean wave patterns from manipulated data. Future processing on the same material will be resumed in mid-March.

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c. Eight 400x500 digitized arrays of unclassified 35mm frames were scanned for [] conducting experiments with this data for [] DDS&T/ORD/

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e. Hold-Down Rings Cause Grease-Like Smudges on DP's. At the request of [] (IEG) and [] (TSG/RED), a qualitative investigation into the cause and resolution of this problem was completed. The smudges were caused on the negative by a plasticizer from the plastic ring to the film. Potential remedial measures include (1) change to a material which contains no plasticizer, (2) clean smudges from film, or (3) allow smudges to remain if the imagery will not be duplicated. Detailed information will be forthcoming in a report being prepared

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f. Unconventional Film Evaluation. Microtomed cross-sections of dry silver film batches are being made to determine the number and thickness of emulsion layers. The data with other film properties will be related to performance. The skills developed in cross-sectioning techniques will also be used for image depth studies by conventional and electron microscopy.

11. The following proposals are being evaluated in RED/ATB:

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- a. Multi-Channel Parallel Optical Correlation -

[REDACTED]

- b. Conduct a Preliminary Design Study to Incorporate
a Laser Source into the High Speed IDT [REDACTED]

- c. Extended Memory Buffer [REDACTED]

- d. Film Grain Noise Research [REDACTED]

[REDACTED]

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13. Evaluation of CRT Image Quality [REDACTED] The evaluation test rig has been finalized with the final selection of the two best tubes. This was accomplished in cooperation with IEG PI's. The full evaluation test program was then initiated on 28 February and will continue through March with two PI's/per week participating in the tests [REDACTED]

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14. Improved Lenticular Screens [REDACTED] Small improved samples have been produced on the new ruling machine. These are being inspected for their resolution and color fringing qualities before approval is given to produce two 30" x 30" screens. The latter is intended for evaluation in the Search & Scan Station to be delivered to NPIC in the near future.

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16. Automated Coordinate Display [REDACTED] The temperature compensation circuitry is being installed at [REDACTED] After completion, approximately one week of testing will take place at the contractor's [REDACTED] facility. Following this, the device will be brought to NPIC for in-house, environmental testing.

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17. Wide-Field, High-Power Stereoviewer [REDACTED] The 9X and 4.75X objectives are complete and have been checked on the optical bench by our consultant and a representative from the Test & Evaluation Branch/ESD. They appear to be free of astigmatism, and they are producing slightly lower than the resolution goals; however, they would still produce an acceptable instrument. There may also be a problem due to the inability of the glass plant to produce one of the required glasses in the relay. This may require a slight change in the optical design. Increased price for machining the large metal castings may cause an additional overrun in cost.

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18. Autofocus - Phase I [REDACTED] During February, the fabricated subcomponents were assembled into the final bread-board and preliminary testing started. [REDACTED]

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19. Stereo Scanning Utility Study [REDACTED] During February, IEG/PHD conducted their assessment of valid setup techniques on the HPSC for ten representative [REDACTED] stereo pairs; from this will come an optimized technique for [REDACTED] testing. [REDACTED] has spent the month compiling test questions for both [REDACTED] test imagery to be used in the Target Readout Search Test. A decision was reached to reduce the number of test subjects from 30 to 20 and request a new cost to complete through the TROS Test only; that is expected in mid-March, approximately 30 days before present funds are expended.

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20. Image Comparison Microstereoscope [REDACTED] Operational suitability evaluations were conducted on the ICM by IEG and SPAD during February; it is currently in APSD for a similar evaluation and will go to DIA and IAS during March. In February, a minor control belt malfunction was corrected, and RED received the acceptance test results which will be incorporated in the Final Inspection Report with the [REDACTED] viewing mode and components operational evaluation. Other members of the intelligence community will be solicited to conduct their own evaluations at NPIC beginning in April.

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21. [REDACTED] carried out a final design review of the PI Scan & Search Station [REDACTED] during the week of 21 February. Indications are that the instrument will be ready for preacceptance tests during the latter part of March.

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22. [REDACTED] has had a series of meetings with [REDACTED] in regard to Phase 2 of the MTF Analyzer Project. [REDACTED] has been instructed to submit a revised proposal to cover certain risk items in this development project rather than proceeding with fabrication. Under the revised work plan [REDACTED] will develop a 600 lpm target and demonstrate the use of this target [REDACTED] to produce an MTF analysis out to 600 lpm.

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23. [REDACTED] has completed the new specifications for follow-on orders for the [REDACTED] light table. The specifications reflect inputs from the NPIC operational components, DIA, TSG/ESD, and TSG/RED.

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24. RED/SDB took part in the evaluation of the recently-developed Optical Equipment Test Kit. Because of the large number of items included in the kit and the inefficient packaging, the kit (as delivered) was much larger than desired. Some of the included items appear to be of marginal value and by deleting these items and by more efficient packaging, it is expected that the kit will reach a more portable size. Production units of the kit should be quite useful in equipment testing.

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25. [REDACTED] delivered a modified Zoom [REDACTED] embodying the interpupillary and image rotation locking devices. [REDACTED] has turned this over to ESD and the operational components for evaluation.

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26. [REDACTED] received several versions of flexible hold-down rings [REDACTED] These have been evaluated by the operational components and a purchase order placed [REDACTED]

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27. A prototype for a new focus mount for the [REDACTED] light table was received by RED/SDB and turned over to ESD for test and evaluation. The change replaced the previous drive worm and worm gear with a new one having a larger velocity ratio. It provides an improved feel to the fine focus adjustment. PI's and ESD/TEB have evaluated the prototype and the PI's have indicated interest in determining costs for retrofit.

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28. The following proposals are being evaluated in
RED/SDB:

- a. Air Bearing Objective Lens [REDACTED] 25X1A
- b. Aerial Image Feasibility Demonstration [REDACTED] 25X1A
- c. Semi-Automatic Pointing [REDACTED] 25X1A
- d. Scan & Search Modifications [REDACTED] 25X1A
- e. Light Table Vibration Elimination [REDACTED] 25X1A
- f. MTF Analyzer Phase 2 - Revised [REDACTED] 25X1A
- g. Precise Measurement Study [REDACTED] 25X1A
- h. Study of new concepts in microdensitometry [REDACTED] 25X1A
- i. Front Projection Viewer Feasibility Study [REDACTED] 25X1A

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29. Meetings, Briefings, etc.:

- a. On 16 February, [REDACTED] met with [REDACTED] AID/PSG, [REDACTED] on possible software support for ATB's DDP-416 computer and also the possibility of installing a portion of the [REDACTED] software package on NPIC's UNIVAC 494. 25X1A

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- b. [REDACTED] attended a two week FORTRAN IV course at Headquarters, 22 February - 3 March.

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- c. [REDACTED] were briefed by [REDACTED] representatives on these pollution abatement system combined with a re-usable wash water system to cut down on volume of waste and contamination products. It is not felt that it offers anything of interest to the Center until such time as a requirement for a large amount of continuous processing is required in PSG. 25X1A

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d. Color Coordination Symposium [REDACTED]

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[REDACTED] At the request [REDACTED] and under the direction of RED/ATB personnel a Research Coordination Session was held. The session was composed of technical representatives of [REDACTED] NPIC [REDACTED] and the objective was to determine if redundancy existed between research programs [REDACTED]

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[REDACTED] It was determined that there was no redundancy between the programs. The various personnel also discussed topics of interest such as the use of color difference formulae in color quality evaluation, the state-of-the-art in color image structure assessments techniques and the intelligence value of color photography.

e. SDB personnel briefed a group from DDI and PPB on the High Precision Stereo Comparator and the PI Printout Station on 7 February.

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f. [REDACTED] briefed [REDACTED] USN-IOIC, on Dry Silver reproduction capabilities.

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g. [REDACTED] attended the USAF milestone briefing on the [REDACTED] Retro Rectifying Enlarger at the [REDACTED] plant on 16-17 February.

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h. [REDACTED] has taken part in a series of meetings to set up a preliminary design for a new digital mensuration study involving IEG/PHD [REDACTED] under the guidance of OSP.

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i. [REDACTED] had several meetings [REDACTED] in regard to IEG's request for the development of eye shades for the [REDACTED] microscope.

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j. [REDACTED] briefed [REDACTED] ORD on NPIC's Vision Research Program on 3 February.

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k. [REDACTED] briefed PSG on ATB's Color Programs on 4 February.

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l. [REDACTED] briefed the Color Task Force on [REDACTED] transparent film and print material.

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m. [REDACTED] briefed [REDACTED] others from PSG/RD on the [REDACTED] Process.

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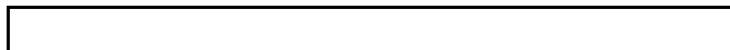


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Later he also briefed several persons at the working level in RD on the same subject. Valuable user preference information was obtained which will be incorporated into a planned development of this process to suit our requirements.

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n.

 presented a briefing on Computer Simulation Techniques for Evaluation of Unconventional Film Potential on 25 February 1972.

30. Personnel:

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Significant Items of Interest for March 1972:

APSD will be briefed on 2 March on Color Software, written by PSG/AID. The RED/ATB Software package includes programs for determination of film color from microdensitometer data, determination of analytical densities from integral densities and specification of color difference using two different formula. These programs will be used in APSD evaluations of mission materials.



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